

THE EMERGENCE OF SEX DIFFERENCES IN PLAY IN THE
PRESCHOOL YEARS: PEER INFLUENCES

BY

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The purpose of the present study was to determine if peers shape sex-typed play behaviors in preschool-age children through direct reinforcement and punishment processes. It was hypothesized that peers would be significantly more likely to reinforce same-sex-preferred play behaviors than opposite-sex-preferred play behaviors. Similarly, it was predicted that peers would be significantly more likely to punish opposite-sex-preferred play behaviors than same-sex-preferred play behaviors. The main hypotheses of the study were not confirmed. In a related vein, popularity with peers was not associated with the degree to which children were sex-typed in their play. Since peers did not directly influence sex-typed play behaviors, the results of this study were discussed in terms of alternative explanations centering around the

interaction between biological and environmental factors.

There were a number of sex differences in play in the 3- and 4-year-old children in the present study. Girls were significantly more likely than boys to engage in art activities, kitchen activities, to look at books, to play dress-up, to assume the role of the baby or child in fantasy play, and to sit and do nothing. Boys, in contrast to girls, were significantly more likely to play on a fort-like structure, swing on ropes, run, engage in violent fantasy play, play with transportation toys, and play with Legos and tinker toys. Boys' play was also significantly more likely to be active. Peers were not significantly more likely to reinforce active play in boys, as compared to girls. Similarly, peers did not punish active play in girls significantly more often than in boys. While there was a higher frequency of physical aggression and mock physical aggression among boys, the two sexes did not differ significantly in the frequency with which they exhibited verbal aggression.

INTRODUCTION

The purpose of the present study was to examine peer reactions to sex-typed play behaviors in the natural environment and thus to determine if peers reinforced same-sex-preferred play behaviors and punished opposite-sex-preferred play behaviors in preschool-aged children. There were a number of reasons why this line of research was judged to be unique and likely to be productive. First, the majority of studies to date that have examined the sex-role socialization process have focused narrowly on parental correlates of sex-typing in children, while relatively few studies have examined the influences of other classes of socializing agents, such as peers. Nearly all of the studies that have focused on peer influences on sex-typed behavior have been conducted in the laboratory setting rather than in the natural environment and have assessed the impact of peer modeling of sex-typed behaviors rather than direct reinforcement of sex-typed behaviors by peers. With the exception of one study (Fagot & Patterson, 1969) that cursorily and inadequately examined peer reactions to sex-typed behaviors, the present study was the first to assess the influence of reinforcement and punishment by peers on sex-typed play behaviors in the natural environment. Given the

very limited knowledge in this area, this study was designed to be primarily descriptive in nature.

While parents undoubtedly make a strong contribution to sex-role learning, this author hypothesized that peers make their own unique contribution to sex-typing, particularly in the area of sex-typed toy and activity preferences. There were several lines of reasoning that led to this hypothesis. Preferences for same-sex peers are evident before preferences for same-sex adults (Kohlberg, 1966), and children are more likely to perceive peers rather than adults as being similar to themselves, especially in the area of play activities. While parents are not often observed playing with toys and do not generally spend extended periods of time playing with their children, play is the medium through which young children interact. Therefore, it is reasonable to assume that young children may shape the play behaviors of their peers.

Another line of reasoning that led to the hypothesis that peers may reinforce same-sex-typed play and punish opposite-sex-typed play has to do with the fact that young children have more rigid notions about appropriate sex-typed behaviors than do older children or adults. Kohlberg (1966) cited an example of a young girl who rigidly insisted that only boys could be doctors, despite

the fact that her mother was a physician. It would not be surprising to find that peers place more pressure on their age-mates to conform to sex-role stereotypes than do their parents. The influential nature of the adolescent peer group with its rigid demands for conformity has been documented repeatedly, but relatively little research has dealt with peer group pressures in younger children. There is evidence to suggest that boys are more responsive to and more oriented towards the same-sex peer group than girls (Maccoby & Jacklin, 1974). Given the rigid sex-role stereotypes of young children, the greater reliance of boys upon the peer group may help to account for the higher degree of sex-typing in boys.

With the transition from the extended family to the nuclear family in recent years and with the decline in the number of children that families are having, today's children have fewer role models for sex-typed and other social behaviors. Under these circumstances, it is likely that the peer culture will become increasingly more important for the transmission of social values. In fact, there is evidence to suggest that boys who lack an adult male role model turn to the peer group for guidance concerning appropriate sex-typed behaviors. In these cases, exposure to the same-sex peer group may override the detrimental effects of father absence on sex-typing

in boys. Hetherington (1966) observed sex-role deficits in boys whose fathers left home before the age of five years. However, the father-absent boys whose fathers left home after the boys were five years old (at a time when most children enter school) were appropriately sex-typed, differing from father-present boys along only one dimension, greater dependence on peers. Peers have been observed to encourage sex-appropriate behaviors (Ross, 1971) and to transmit sex-typed behaviors in modeling studies (Kobasigawa, 1968; Wolf, 1973). In addition, a recent study by Serbin, Connor, Burchardt, and Citron (1979) suggests that peers may serve as discriminative stimuli for the avoidance of sex-inappropriate behaviors.

While the evidence for the importance of experiences with peers to the development of normal sex-typing will be reviewed in later sections, there is a body of research from gender-disturbed individuals that provides indirect evidence for the influences of peers. Harlow's work with monkeys indicates that experiences with peers are important to later social and sexual functioning. A history of poor peer relations is included in the descriptions of the vast majority of gender-disturbed individuals (Bentler, 1976; Rekers, 1979; Saghir & Robins, 1973). Isolation from the same-sex peer group is a hallmark of gender disturbances, both in this culture and

cross-culturally (Werner, 1979). Gender-disturbed children experience ridicule and rejection from peers, play predominantly in opposite-sex peer groups when they are not rejected by peers of both sexes, and exhibit toy and activity preferences more characteristically associated with the opposite sex (Bates & Bentler, 1973; Rekers & Yates, 1976). At times, opposite-sex play preferences in gender-disturbed children are a function of reinforcement for such preferences by peers in early childhood. Thus, the young boy who lives in a neighborhood entirely populated by female age-mates may develop play preferences more typically associated with the opposite sex. At other times, the temperamental characteristics of the child, the pattern of family relationships, or parental encouragement for cross-sex behaviors are implicated in the etiology of gender disturbances. Regardless of the etiology of these preferences for cross-sex behaviors, the problems of the gender-disturbed child are compounded by the rejection that he receives from same-sex peers and by the reinforcement that he receives for cross-sex play within the opposite-sex peer group. Young children of the opposite sex will sometimes allow the gender-disturbed child to play with them, but as they grow older even opposite-sex peers are likely to reject the gender-disturbed child.

Before describing the present study in more detail, a review of the literature on sex differences in play and the effects of parents, preschool teachers, and peers on sex-typed play behaviors will be provided in order to place the present investigation within a broader context.

Sex Differences in Toy and Activity Preferences

Sex differences in toy and activity preferences are well-documented. However, it is unclear how early in life these differences emerge. Some inconsistent sex differences in toy and activity preferences have been observed in children as young as one year of age. By two years of age, these differences are somewhat more stable, and by three years of age, differences in sex-typed play behaviors are reliably found. Table 1 summarizes the results of 16 studies in which sex differences in toy and activity preferences of infants and preschoolers have been reported. No attempt has been made to include toys and activities that do not differentiate between boys and girls.

Between the first and the second year of life, sex differences in toy preferences begin to emerge. The most reliable sex differences during this period include a preference for dolls (Fagot, 1974; 1978b; Fein, Johnson, Kosson, Stork, & Wasserman, 1975; Smith & Daglish, 1977), soft toys (Fagot, 1974, 1978b; Smith & Daglish, 1977), and dancing (Fagot, 1974; 1978b) on the part of girls and

Table 1

Toy and Activity Preferences of Infants and Preschoolers

<u>Study</u>	<u>Age</u>	<u>Difference</u>	<u>Toys or Activities</u>
Smith & Daglish (1977)	12-24 mos.	Boys Girls	Transportation toys Dolls, soft toys
Goldberg & Lewis (1969)	13 mos.	Boys Girls	Bang toys, play with non-toys Manipulate toys, play with stuffed dog, inflated plastic cat, blocks, pegboard
Jacklin, Maccoby, & Dick (1973)	13-14 mos.	Boys	Robots
Fagot (1974)	18-24 mos.	Boys Girls	Blocks, manipulate objects or toys Dolls, soft toys, dress-up, dance
Fein, Johnson, Kosson, Stork, & Wasserman (1975)	20 mos.	Boys Girls	Truck, hammer, gun Bracelet, doll, iron
Fagot (1978b)	20-24 mos.	Boys Girls	Blocks, transportation toys, manipulate objects Dolls, soft toys, dance, dress-up
Pederson & Bell (1970)	2-3 yrs.	Boys Girls	Manipulate physical objects, gross motor activity Play on swings, glider, play with dough or clay
Clark, Wyon, & Richards (1969)	2-4 yrs.	Boys Girls	Wooden boxes, push-toys Dolls, sew, paint, glue, cut, crayons

Table 1 -- continued

<u>Study</u>	<u>Age</u>	<u>Difference</u>	<u>Toys or Activities</u>
Fagot & Patterson (1969)	3 yrs.	Boys Girls	Blocks, transportation toys, sandbox Art activities, kitchen, dolls
Tizard, Philps, & Plewis (1976)	3-4 yrs.	Boys Girls	Vehicles, garages, crates, tires, ladders Swings, climb frames, dolls, domestic equipment
Fagot (1977)	4 yrs.	Boys Girls	Sandbox, blocks, transportation toys, ride tricycles and cars Jump rope, dolls, art activities, kitchen
Harper & Sanders (1975)	3-5 yrs.	Boys Girls	Tractor, climb, play in sandbox, play around equipment shed Arts and crafts, kitchen
Fagot (1978a)	3-5 yrs.	Boys Girls	Sandbox, transportation toys, ride tricycles and cars, manipulate objects, rough-and-tumble play, aggressive behavior Dolls, kitchen, art activities, play with clay, look at books
Melson (1977)	4 yrs.	Boys Girls	Blocks, large muscle activity Art activities
Rabban (1950)	4-8 yrs.	Boys	Guns, knives, soldiers, cement mixers, fire engines, racing cars, trucks, steamrollers

Table 1 -- continued

<u>Study</u>	<u>Age</u>	<u>Difference</u>	<u>Toys or Activities</u>
Lott (1978)	5 yrs.	Girls	Doll, bathinette, high chair, buggy, crib, dishes, beads, purse
		Boys Girls	Wagons, sand pit Swings, paint, paste, draw, jigsaw puzzles

a preference for transportation toys (Fagot, 1978b; Fein et al., 1975; Smith & Daglish, 1977) on the part of boys. In addition to the studies listed in Table 1, Etaugh, Collins, and Gerson (1975) found that 2-year-old girls were more likely than boys to read books, listen to stories, and help the teacher, while 2-year-old boys were more likely to hammer and to play with transportation toys. However, this study was not presented in Table 1 since it does not report which differences were significant and which were "marginally significant" ($p < .07$). Several studies (Brooks & Lewis, 1974; Corter & Jamieson, 1977; Messer & Lewis, 1972) have failed to find sex differences in toy preferences in 1-year-old children. Although other researchers have reported sex differences as early as 12 months, it appears that these differences become somewhat more stable in the one-and-one-half to two-year-old age group.

Between the ages of two and three years, girls more frequently engage in doll play (Clark, Wyon, & Richards, 1969; Fagot & Patterson, 1969; Pederson & Bell, 1970) than is the case with boys. Boys continue to prefer play with transportation toys (Fagot & Patterson, 1969). In a study of 3-year-old preschoolers, Connor and Serbin (1977) reported that boys preferred to play with balls, airplanes, trucks, wagons, motors, cube puzzles, blocks, Lincoln Logs and Tinker toys. Girls preferred to play with dolls, doll houses,

dollbeds, kitchens, sewing accessories, musical instruments, record players, crayons, painting materials, and play telephones. This study was not listed in Table 1 since the authors adopted the .20 level of significance in their statistical analyses, and they did not report the significance level for each individual sex difference. Again, there are exceptions to the generalizations made above. For example, Clark, Wyon, and Richards (1969) did not find that boys play with transportation toys more than girls, and Rabban (1950) failed to find any sex differences in choices among masculine and feminine toys in a group of 3-year-olds. Nevertheless, in general, the literature suggests that girls' preferences for dolls and boys' preferences for transportation toys are fairly well established by the age of three.

After the age of three years, sex differences become more stable and more numerous. Preschool-age girls are more likely than boys to play on swings (Lott, 1978; Tizard, Philps, & Plewis, 1976), to play with kitchen and domestic equipment (Fagot, 1977, 1978a; Harper & Sanders, 1975; Tizard, Philps, & Plewis, 1976), to engage in doll play (Fagot, 1977, 1978a; Rabban, 1950; Tizard, Philps, & Plewis, 1976), and to enjoy arts and crafts (Fagot, 1977; 1978a; Harper & Sanders, 1975; Lott, 1978; Melson, 1977). Boys are more likely to play in the sandbox

(Fagot, 1977, 1978a; Harper & Sanders, 1975; Lott, 1978), to play with transportation toys (Fagot, 1977, 1978a; Rabban, 1950; Tizard, Philos, & Plewis, 1976), and to ride tricycles and cars (Fagot, 1977, 1978a). Many other sex differences have been reported in preschoolers (see Table 1). However, those cited above are the most frequently replicated findings. It should be noted that the vast majority of these studies have dealt with white, middle to upper-middle class children, and there is some evidence to suggest that the results of these studies may not be generalizable to different populations of children.

Style of Play

In terms of qualitative differences, studies have generally discovered that boys are significantly more active (Goldberg & Lewis, 1969; Pederson & Bell, 1970; Smith & Daglish, 1977) and more aggressive (Pederson & Bell, 1970; Smith & Green, 1975) in their play than are girls. Goldberg and Lewis (1969), in children as young as 13 months old, found that boys were more active and more likely to bang toys than were girls, while girls were more likely to sit and play quietly with toys. Melson (1977) found that greater activity level in boys' play is generally found in outdoors' (not indoors') areas, and there was some support for Maccoby and Jacklin's

hypothesis that boys have an energizing effect on each other's play. In addition, boys spend more time than girls playing outdoors (Harper & Sanders, 1975; Sanders & Harper, 1976). The active/aggressive dimension of boys' play extends to fantasy play situations. Preschool-age boys are more likely to engage in fantasy play than girls, and their fantasy play is more frequently outdoors and active (Sanders & Harper, 1976). The themes of symbolic play differ for boys and girls, with boys more often pretending to be driving a car, train, or plane and pretending to be fighting or killing. The latter theme is hardly ever observed in girls' play, and boys are also more likely than girls to engage in actual fighting (Tizard, Philps, & Plewis, 1976). Cramer and Hogan (1975) conducted a study on fantasy play based on Erikson's observations that girls use open, inner space (e.g., interior of houses without walls) in creating fantasy play scenes and boys construct protrusions and erections (e.g., tall towers). In Erikson's original work, girls' play evidenced some anxiety about intrusions into the inner spaces that they created, while boys tended to be anxious about the collapse of erected structures. Erikson related these observations to the child's perception of his or her own body. The sexual organs of boys are external, erective, and intrusive, while those of girls

are internal and inclusive. According to Erikson, differences in genitalia influence spatial organization such that boys tend to be intrusive, to push out into space, and girls tend to be inclusive, incorporating activity into an enclosure. The results of Cramer and Hogan's (1975) study were consistent with Erikson's theory in older children (9 to 12 years old), but no sex differences in the use of inner/open vs. erective space were found in the dramatic productions of the 3- to 6-year-old group. Although the authors concluded that their findings supported Erikson's theory, sex differences were generally found only in the older group of children, where social learning is a more plausible explanation than anatomical differences. Several of the differences between the younger boys and girls that the authors claimed were significant were so only at the .10 level of probability. However, to return to the active/aggressive content of fantasy play in boys, there were several significant differences between the younger boys and girls in terms of themes of fantasy play. The fantasy play stories of young boys were more likely to contain themes of danger and violence, to take place outside, and to involve active characters. Girls' stories were more likely to take place inside, to involve peaceful family scenes, and to use relatively passive characters. From Erikson's viewpoint, the

psychological dimension of activity in males and passivity in females is seen as an extension of the mobility of the sperm cells vs. the inactivity of the ova.

Boys tend to display more interest than girls in novelty and in exploratory play during the preschool and kindergarten years, although sex differences in these areas are inconsistent before the age of three and after the age of six years (Maccoby & Jacklin, 1974). Rabinowitz, Moely, Finkel, and McClinton (1975) found that 35- to 62-month-old boys spent more time than girls of the same age playing with novel toys and less time playing with familiar toys. In summarizing her work with nearly 200 nursery school children, Hutt (1977) stated that boys are more likely than girls to explore a novel toy and to use it in creative or inventive play.

Both humans and nonhuman primates play in same-sex groups the majority of the time (Bianchi & Bakeman, 1978; Clark, Wyon, & Richards, 1969; Laosa & Brophy, 1972; Melson, 1977; Rosenblum, Coe, & Bromley, 1975). This preference for play with same-sex peers has been observed in children as young as three years old (Clark, Wyon, & Richards, 1969). However, same-sex peer preferences are somewhat less common in liberal preschools that actively attempt to minimize sex differences, as compared to more traditional preschools (Bianchi & Bakeman, 1978). The effects of liberal preschools

on sex-typed behaviors are, of course, confounded with the effects of liberal parents who send their children to liberal preschools. Jacklin and Maccoby (1978) have summarized three possible explanations for preschoolers' preferences for interacting with peers of their own sex. This phenomenon may be due to direct reinforcement, whereby children are reinforced by peers or adults for play with same-sex peers. In contrast, the cognitive consonance view (ala Kohlberg) contends that children classify themselves as male or female and then prefer playmates who are similar to themselves. However, preferences for same-sex playmates are consistently seen before the age of five or six years, the age at which Kohlberg suggests gender constancy develops. Finally, the behavioral compatibility hypothesis contends that children of the same sex are more likely to enjoy similar activities. This explanation comes in two forms, one that stresses social reinforcement for similarities within same-sex peer groups and one that stresses genetically sex-linked tendencies. Of the latter type, the ethological view is a case in point, which holds that specific signals (e.g., those initiating rough-and-tumble play) are more common in one sex, and members of the same sex have a built-in readiness to respond to those signals.

Within same-sex groups, boys and girls behave differently. Boys generally play alone or in groups of other boys, while girls generally play in pairs (Laosa & Brophy, 1972; Waldrop & Halverson, 1975). Within the realm of fantasy play, preschool-age boys characteristically engage in solitary and interactive fantasy play, while girls more commonly engage in cooperative role taking (Sanders & Harper, 1976). Girls are significantly more likely than boys to play house and to play school in their fantasy play interactions.

One recent study (Etaugh, Collins, & Staulcup, 1979) suggests that there may be sex differences in the level of social play exhibited by 2-year-olds. This study classified children's play behaviors according to Parten's categories of social participation: unoccupied behavior, solitary play, onlooker behavior, parallel play, associative play, and cooperative play. Boys were involved in associative play more frequently than were girls. The number of siblings that the children had correlated positively with a relatively more advanced stage of social play for 2-year-olds, parallel play, and correlated negatively with a less advanced level of social play, onlooker behavior. Therefore, the number of siblings that a child has may influence the development of peer-directed play. In contrast, the work of Brooks-Gunn &

Lewis (1979) with children 12 to 18 months old suggests that boys, but not girls, are less likely to interact with other children if they have older siblings.

In summary, sex-typed toy and activity preferences emerge in the preschool years, with girls preferring doll play, art activities, play on swings, and play with kitchen equipment, and boys preferring play in the sand-box and play with transportation toys. Boys' play is more likely to be active, aggressive, exploratory, and outdoors. In addition, boys and girls generally prefer to play in same-sex groups. The forces that interact to produce these sex differences in play are numerous and pervasive, and we will now turn to a discussion of the major sources of socialization: parents, preschool teachers, and peers.

Parents as Socializing Agents

There is no doubt that parents hold different attitudes towards their sons and their daughters and that these attitudes extend to the area of sex-typed toys and activities. Even childless adults feel that rough house play, aggression, and play with transportation toys are more appropriate for 2-year-old boys, while doll play, dress-up, and looking in the mirror are more appropriate for 2-year-old girls (Fagot, 1973). Significantly more men than women rated these behaviors as sex-typed,

reflecting a general finding in the literature that men are more actively concerned with sex-typing than are women. In two studies with parents of children ranging from 18 to 24 months of age, Fagot (1974, 1978b) found that parents rated aggression, rough-and-tumble play, and dressing up like an adult male as appropriate only for boys, and doll play, dancing, singing, and dressing up like an adult female as appropriate only for girls. Many of these parents espoused an egalitarian view with respect to sex-role socialization, and yet, these egalitarian parents were no less likely to rate a behavior as appropriate to only one sex than were the parents who did not plan to actively encourage sex equity in their children. Again, the fathers in both of these studies were more concerned with appropriate sex-typing than were the mothers. Similar sex-role stereotypes have been observed in British parents of 1- to 2-year-old children (Smith & Daglish, 1977). These parents rated active play, play with transportation toys, aggressive behavior, and gets hurt as typically masculine, and play with soft toys and dolls, dress-up, has clothes changed, looks in mirror, sits quietly, and dances as typically feminine.

Children as young as three years of age are aware of the sex-role stereotypes that exist in our culture.

Three-year-olds of both sexes believe that girls like to play with dolls, cook, clean house, help mother, and ask for help and that boys like to play with cars, build things, threaten aggression, and help father (Kuhn, Nash, & Brucken, 1978). Smith and Barclay (1979) presented a 4-month-old infant to a group of kindergarten-age children. The infant was dressed either as a male or a female and was introduced to the children as either "Tom" or "Laura." When the children believed that the infant was a boy, they described him as big, strong, tough, a good eater, noisy, cheerful, and not beautiful. When the same infant was presented as a female, the children's descriptors included little, weak, quiet, gentle, fussy, a bad eater, and beautiful.

The important question is whether or not the attitudes that parents hold affect their behavior towards their sons and daughters. Will, Self, and Datan (1976) observed 11 mothers playing with a 6-month-old boy. Six of the mothers were told that the child's name was Adam, and five were told that the child's name was Beth. Mothers were more likely to offer a doll to the child when they believed that they were playing with a girl, and they offered a train more often to "Adam," despite the fact that all of these women claimed to believe that male and female infants are alike and none of them said that they would treat their own sons and daughters

differently. Smith and Lloyd (1978) replicated the work of Will, Self, and Datan (1976) using two male and two female 6-month-old "actor babies." They found that mothers were more likely to offer dolls to babies presented as girls and hammers to babies presented as boys, regardless of the infants' biological status. In addition, these women were significantly more likely to encourage physical activity when they believed that they were interacting with male infants. However, one study in this genre (Gurwitz & Dodge, 1975) found that the actual sex of the child had a greater effect on undergraduates' ratings of sex-typed behaviors than did the label assigned to the child (girl or boy).

Parents of 2-year-olds react more favorably to their child when the child exhibits same-sex-preferred behavior and are more likely to respond negatively to cross-sex-preferred behavior (Fagot, 1978b). Parents give boys significantly more positive responses when they play with blocks and significantly more negative responses when they play with dolls and soft toys, ask for help, and offer to help with tasks. Parents positively reinforce girls for playing with dolls, asking for help, and following parents, while girls are more likely than boys to receive negative responses when they manipulate objects and engage in large motor activities, such as

running, jumping, and climbing. Compared to mothers, fathers are more likely to discourage doll play and play with soft toys in boys and to encourage their daughters to stay close to them. Therefore, parents of girls reinforce adult-oriented, dependent behavior and punish active, large motor behavior more than parents of boys. The correlation between parental reports of their reactions to their children and behavioral observations of their reactions was low. Therefore, parents may not be fully aware of the ways in which they socialize their sons and daughters differently.

However, not all studies have found that parents socialize their children differently. In fact, Maccoby and Jacklin (1974) concluded that there is a "surprising degree of similarity in the rearing of boys and girls" (p. 362). Smith and Daglish (1977) found that parents, even those with highly stereotyped views of sex-appropriate behavior, do not respond differently to their children's sex-typed play. Nor was there a significant correlation between the degree of sex-role stereotyping in the parents and the degree of sex-typed play behavior in their sons and daughters. Similar results have been reported by Fagot (1974), who found that children whose parents rated a number of behaviors as appropriate to only one sex were no more sex-typed in their play than were

children whose parents were very upset at even being asked about the possibility that they might respond differently towards boys and girls.

The majority of studies to date suggest that boys receive more pressure to conform to sex-role stereotypes than do girls (Fagot, 1974; Fling & Manosevitz, 1972; Lansky, 1967), and from approximately four years of age on, boys become increasingly more sex-typed in their behavior than girls (Maccoby & Jacklin, 1974). In a study with 3- and 4-year-old children, Serbin, Connor, Burchardt, and Citron (1979) found that girls played with opposite-sex-typed toys 29.2% of the time, while the corresponding figure for boys was 14.5%. However, the results of two other studies suggest that in very young children (2 and 3 years old) the typical finding of greater sex-role flexibility in girls may be reversed (Etaugh, Collins, & Gerson, 1975; Fagot & Patterson, 1969). Fagot and Patterson (1969) found that girls were less likely than boys to engage in opposite-sex-preferred activities. Girls spent 7.6% of their time in opposite-sex-preferred activities, while the corresponding figure for boys was 13.5%. Older boys very rarely play with cross-sex-typed toys. In a study by Tauber (1979), 8- and 9-year-old girls spent an average of 1.04 out of 7 minutes in play with cross-sex toys, compared to only 0.23 minutes for boys. Parents, and especially fathers,

of preschool children are significantly more likely to express negative attitudes towards boys' choices of cross-sex activities than to girls' choices of cross-sex activities (Lansky, 1967). In an attempt to demonstrate that boys are more likely than girls to avoid sex-inappropriate toys, Hartup, Moore, and Sager (1963) observed 147 children, aged three to eight years old, in a laboratory playroom. The playroom was stocked with only sex-inappropriate toys and a few, unattractive neutral toys in order to avoid contaminating the avoidance of sex-inappropriate toys with sex-appropriate toy preferences. The authors' operational definition of play was a very questionable one, including looking at and proximity to toys as well as actual contact with toys. They did not specify how they measured "looking" or precisely how close the child must be before they considered him to be in proximity to the toys. Latency of orienting to the sex-inappropriate toys was longer for older boys than for younger boys, and latencies for orienting to the sex-inappropriate toys were longer for all boys when the experimenter was present, as compared to absent. Neither of these effects was found for girls. Unfortunately, there was only one experimenter used in this study, a female, and it is possible that inhibition of sex-inappropriate play occurs only in

the presence of an opposite-sex model. More recent and and more methodologically rigorous research has also suggested that sex-typed play is under discriminative stimulus control. Rekers (1975) observed five extremely effeminate boys in a laboratory playroom situation. Although all five boys played predominantly with feminine sex-typed toys when playing alone, at least one stimulus condition (e.g., presence of mother, father, male or female stranger) was found for each boy in which he played predominantly with masculine toys.

In summary, parents, and especially fathers, are very important in the sex-role socialization process of children, and sons receive more pressure to conform to sex-role stereotypes than do daughters. However, the number of studies that have failed to demonstrate that parents treat their sons and daughters differently (Maccoby & Jacklin, 1974) suggests that parents are only one class of social agents that bring socialization pressures to bear on the developing child. The second most frequently studied class of social agents is preschool teachers.

Preschool Teachers as Socializing Agents

Partially in conflict with predictions made from social learning theory, preschool teachers tend to reinforce both boys and girls for feminine behavior, although male and female teachers differ somewhat in their responses to

sex-typed behaviors. In a free-play situation with 3-year-old children, Fagot and Patterson (1969) observed that female preschool teachers delivered 199 out of 232 reinforcers to boys for feminine sex-typed behaviors. Teachers reinforced girls for feminine behaviors 353 out of 363 times. Despite the frequency with which boys were reinforced by teachers for feminine behaviors, their behavioral preferences did not become more feminine during the course of the school year. Etaugh, Collins, and Gerson (1975) found that only 17% of the rewards of female nursery school teachers and 33% of the rewards of a male nursery school teacher were given for masculine behaviors in a group of 2-year-old boys and girls, while teachers of both sexes were equally likely to reward feminine behaviors in both sexes.

Preschool teachers' responses to sex-typed behavior also vary with the level of experience of the teacher. Fagot (1978) observed that inexperienced teachers are more likely than experienced teachers to join in the children's play. They interact more with girls when the girls are engaging in feminine activities and with boys when they are engaging in masculine activities. On the other hand, experienced teachers initiate activities more often than inexperienced teachers, and they reinforce children of both sexes for feminine sex-typed behavior. Fagot suggested that inexperienced teachers

tend to go along with the children's own preferences in play activities, while experienced teachers reinforce feminine behaviors that they believe are important to academic success. One problem with this study was that the experienced teachers were older and more likely to have responsibility than the inexperienced teachers, possibly accounting for the difference in initiating activities vs. joining in children's play. Preschool teachers in other countries are less likely to reinforce feminine behaviors in boys than are preschool teachers in the United States. For example, Fagot (1977) found that Dutch preschool teachers reinforced masculine behavior in boys and feminine behavior in girls.

Preschool teachers tend to reinforce dependency in females (Serbin, O'Leary, Kent, & Tonick, 1973). Girls receive more attention from the teacher when they are close to her, while boys receive a similar amount of attention regardless of where they are in the room. Perdue and Connor (1978) found that preschool teachers were more likely to touch children of their own sex than children of the opposite sex. When male teachers did touch female preschoolers, it was usually within the context of a helping situation, possibly reinforcing females' dependency on males.

Although it appears that preschool teachers may differentially reinforce dependent behaviors in young females, the data suggest that preschool teachers reinforce feminine toy and activity preferences in both boys and girls. If preschool teachers were the only class of socialization agents, one would predict that boys would exhibit more and more feminine behaviors over the course of the school year, and yet this was not the case. Again, the effects of many sources of sex-role socialization must be considered.

Peers as Socializing Agents

A substantial body of research has been directed towards investigating peer group influences during adolescence, but relatively few studies have investigated peer relations in early life, although there is evidence to suggest that peers may make a significant contribution to early development. Peer relations begin very early in life. Lewis, Young, Brooks, and Michalson (1975) maintain that infants as young as one year of age are capable of establishing friendships. Compared to unfamiliar peers, familiar peers are more likely to remain in proximity to one another, imitate each other, display more positive affect, and offer and share toys. There has been relatively little attention paid to the role that peers may play in the development of sex-typed behaviors, although there is ample evidence from studies dealing

with peer interactions in general to suggest that they may in fact make their own unique contribution to the socialization of sex differences. Harlow's research with rhesus monkeys suggests that early peer interactions are important to the development of normal social and sexual relations in adulthood. Suomi and Harlow (1975) have summarized their work at the University of Wisconsin with monkeys exposed to varying degrees of social deprivation in early life. Rhesus monkeys raised in total isolation display severe social and sexual interaction deficits in later life. They spend the majority of the time in autistic-like behaviors, such as repetitive rocking, self-clasping, and self-mouthing. Their sexual responses are inadequate, and females who are artificially inseminated display poor maternal behaviors. Aggressive behavior is inappropriately directed, e.g., towards self or towards the dominant male. Deficits in monkeys who are raised by their mothers but without contact with peers are less devastating, but nevertheless present. Compared to rhesus monkeys who have had prior contact with peers, they are far less likely to engage in play interactions and grooming behaviors, and they are more likely to be hyperaggressive when they are eventually exposed to peers. Monkeys who are raised only with their peers become hyperattached to one another and display an excessive

amount of clinging to each other, thus inhibiting exploration and play interactions and retarding social development. In adulthood, they are disturbed by very mild stresses, and they are hyperaggressive towards monkeys other than those with whom they were raised. In contrast, monkeys raised without mothers but permitted limited contact (less than two hours per day) with peers exhibit essentially normal patterns of social development. Suomi and Harlow (1975) believe that peer relationships are essential for monkey socialization and survival.

Moving up the phylogenetic scale, Hartup (1977) argues, "Experience with peers is not a superficial luxury to be enjoyed by some children and not by others, but is a necessity in childhood socialization" (p. 345). Like Harlow's monkeys, children who have poor peer relations are often inappropriately aggressive and subsequently display poor sexual adjustment. Hartup (1977) surveys a large body of research and concludes that early peer interactions are important in several domains, namely aggression, sex, and anxiety and emotional disturbance. However, all of the evidence cited is correlational in nature, and the direction of the effect is not obvious. For example, Hartup (1977) stated that at least 20 studies have found that general emotional adjustment is related to popularity with peers. Nevertheless,

the author does rightly point out that adults do not ordinarily play with children for prolonged periods of time and that play develops primarily within the context of the peer group. As discussed previously, Hartup (1977) notes that "sex is the overriding polarizer in peer group formation in all primate species from the point of earliest contact" (p. 348), and he points out that it would be surprising if same-sex peer groups did not transmit sex-role standards. Preferences for same-sex peers begin as early as three years of age (Clark, Wyon, & Richards, 1969), and preschoolers of both sexes reinforce same-sex peers more than opposite-sex peers (Charlesworth & Hartup, 1967). Children as young as one year of age spend more time looking at same-sex peers than at opposite-sex peers (Brooks-Gunn & Lewis, 1979), and preschoolers stop and orient their bodies further away from opposite-sex peers than from same-sex peers (Wasserman & Stern, 1978). A higher frequency of social interaction, both positive and negative, has been observed in same-sex dyads (vs. opposite-sex dyads) of 33-month-old children (Jacklin & Maccoby, 1978). Langlois, Gottfried, and Seay (1973) found that 3-year-old females and 5-year-olds of both sexes were more socially active in same-sex dyads, although 3-year-old boys were more active in play with a girl peer.

Young children may be more likely to imitate their peers than their mothers in play situations. Rubenstein and Howes (1976) observed 19-month-old children during free play in their homes, with or without a familiar playmate. The presence of a peer facilitated a high level of play with toys, and the children were more likely to play with, imitate, and offer toys to peers than to mothers in similar interactions. The age at which children are more likely to interact with their peers than with their mothers in play situations is uncertain. Eckerman, Whatley, and Kutz (1975) observed 30 pairs of children from three age groups, 10-12, 16-18, and 22-24 months old in a laboratory playroom with their mothers. All three age groups played with toys and interacted with their peers, and there was little contact with their mothers. By two years of age, social play exceeded solitary play in this study. However, Brooks-Gunn and Lewis (1979) found that older infants (18-19 months) were more likely than younger infants (12-13 months) to stay close to and to touch their mothers, while the younger infants were more likely to stay in proximity to and to touch other infants, and Lewis, Young, Brooks, and Michalson (1975) found that infants in the 12 to 16 months old range prefer to maintain proximal contact with their mothers and distal contact with their peers.

The importance of peers in the more specific area of sex-typed play behaviors has been suggested by a number of studies, most of which have involved modeling paradigms in the laboratory playroom. Ross (1971), in an experimental "toy store" procedure designed to demonstrate that peer modeling of deviant behavior increases the likelihood that nursery school children will take more toys than they were allowed to take, incidentally found that boys were more likely than girls to encourage peers of both sexes to choose sex-appropriate toys. Kobasigawa (1968) presented 5- and 6-year-old children with a choice of neutral or sex-inappropriate toys following exposure to either a same-sex or an opposite-sex peer model (age unspecified) who played with toys inappropriate to the child's own sex. In defining sex-inappropriate play following exposure to the model, Kobasigawa, like the previously mentioned study by Hartup, Moore, and Sager (1963), included looking at, proximity to, and touching the sex-inappropriate toys, and therefore this study suffers from the same methodological flaws as its predecessor. As is the case with other studies in this genre, the results are confounded since the same-sex model is displaying sex-inappropriate behavior, while the opposite-sex model is displaying sex-appropriate behavior. Kobasigawa (1968) found a significant increase in sex-inappropriate play for boys, but not

for girls, following exposure to a same-sex peer model who played with sex-inappropriate toys, relative to the opposite-sex model or the no-model control groups.

A study by Wolf (1973) has the advantage of being one of the only studies of peer modeling of sex-typed play behaviors that was not conducted in the laboratory setting. Rather, it involved 60 children who were enrolled in a YMCA summer camp. Children, ranging in age from 7 to 11 years old, were exposed to an 8-year-old opposite-sex or same-sex model who engaged in sex-inappropriate play. A no-model control group was also included. Two dependent measures were used, latency to first response and total time spent playing with the sex-inappropriate toy (there were only two toys used, a truck and an oven). Boys played longer, but not more quickly, with the sex-inappropriate toy following exposure to a same-sex model as compared to an opposite-sex model. Girls, on the other hand, played more quickly, but not significantly longer, following exposure to a female model, as compared to a male model. In a more recent study by the same author, Wolf (1975) concluded that 5- to 8-year-old boys, but not girls, were significantly more likely to play with sex-inappropriate toys following exposure to an adult (vs. a younger) model of the same sex who played with sex-inappropriate toys. However, the younger models could not

be considered peers since they were considerably older (13 years old) than the children in the study, and the increase in sex-inappropriate play in boys cannot be attributed solely to the effects of modeling since the models essentially told the children that they should play with the sex-inappropriate toys. Therefore, the effects observed in this study may have been due to the fact that boys are more likely to comply with the demands of an adult male than with those of an adolescent.

Dowrick, in an unpublished doctoral dissertation, attempted to modify the cross-gender play behaviors of an extremely effeminate boy using a filmed sequence that depicted an adult male and the boy engaging in sex-appropriate play behaviors. Virtually no effect on sex-typed play was observed, although a significant increase in masculine sex-typed play occurred following exposure to a second film that depicted the boy playing with masculine sex-typed toys with another boy of the same age. Therefore, a peer was more influential than an adult in modifying sex-typed play in this study.

Serbin, Connor, Burchardt, and Citron (1979) evaluated the effects of the presence of same-sex and opposite-sex peers on sex-typed play in 3- and 4-year-old children. The children played in a laboratory playroom alone, in the presence of a same-sex peer, and in the

presence of an opposite-sex peer (the peer sat passively in the corner of the playroom drawing). The proportion of time spent in play with opposite-sex-typed toys was highest when alone and lowest when in the presence of an opposite-sex peer. The authors concluded that opposite-sex peers serve as discriminative stimuli for avoidance of sex-inappropriate play in preschoolers and suggested that preschoolers may have a history of reinforcement for same-sex-preferred play in the presence of peers. The only study in the literature that relates directly to the hypothesis that peers may reinforce sex-appropriate play is one by Fagot and Patterson (1969). In this study, the authors observed 36 nursery school children of only one age group, three years old, in order to determine whether nursery school teachers and peers reinforce sex-appropriate play. As previously noted, Fagot and Patterson (1969) found that female nursery school teachers reinforce feminine behaviors more than masculine behaviors in both boys and girls. Since the boys' behavioral preferences did not become more feminine during the course of the school year, the authors concluded that the stability of the boys' masculine play preferences was a function of a combination of peer and parental reinforcement for masculine sex-typed play. Peers reinforced same-sex peers significantly more often

than they did opposite-sex peers. Boys reinforced boys 359 times, and they reinforced girls 71 times. Similarly, girls reinforced other girls 463 times, while they reinforced boys only 63 times. This finding may simply be a function of the fact that children play in same-sex groups. Pagot and Patterson (1969) stated that peers virtually never reinforced opposite-sex-preferred play behaviors. However, they did not report how often peers reinforced same-sex-preferred or neutral play, and therefore, it was not clear if the children in this study were significantly more likely to reinforce same-sex-typed play than opposite-sex-typed play. Their definition of reinforcement was a restricted one, "interactive play," which included positive comments, joint projects, and joining in another child's game. It may be that peers reinforce same- or opposite-sex-preferred behaviors in other ways, e.g., by physical reinforcement or by simply talking to the child. Similarly, in relation to opposite-sex-preferred activities, the authors used a narrow definition of punishment, criticism. Rather than reporting the frequency with which peers punished sex-inappropriate play behaviors for the group as a whole, the authors referred to only one boy who displayed more feminine behaviors than the average girl and who received more criticism than the other boys. No statistical tests were

conducted to determine if peers punished opposite-sex-typed play more than same-sex-typed play. Therefore, the shortcomings of this study included narrowly defined concepts of reinforcement and punishment, failure to report the frequency with which peers responded negatively to opposite-sex-typed behavior and positively to same-sex-typed behavior, failure to report whether girls were less likely than boys to receive negative peer reactions for opposite-sex-typed behaviors, and failure to apply statistical analyses to their results. In addition, the results of this study may not be generalizable to nursery school children of today, 12 years later. Nevertheless, their results suggest that peers are important in the sex-role socialization process, more important than has previously been recognized. Once again, there are many classes of social agents that reinforce sex-typed play behavior, and all of them interact to produce feminine girls and masculine boys.

Hypotheses of the Present Study

The purpose of the present study was to examine peer reactions to sex-typed play behaviors in the natural environment and thus to determine if peers reinforce same-sex-preferred play behaviors and punish opposite-sex-preferred play behaviors in preschool-age children. Specifically, it was hypothesized that peers would reinforce

same-sex-preferred activities more than opposite-sex-preferred activities and that they would punish opposite-sex-preferred activities more than same-sex-preferred activities in both boys and girls. Boys are more likely to be encouraged to conform to sex-role stereotypes, and indeed they are more sex-typed than girls. Therefore, it was hypothesized that peer reinforcement and punishment processes would be particularly evident in the case of boys.

In addition to the main research questions, there were several secondary hypotheses that might also be tested, if the data allowed. It was hoped that the subjects could be classified according to the degree to which their play preferences were sex-typed so that it would be possible to identify boys and girls who were fairly consistently sex-typed in their play vs. those who were less sex-typed in their play. If such a classification scheme were possible, it was hypothesized that highly masculine sex-typed boys would be more popular than boys who were less sex-typed in their play, while popularity would be less dependent on the degree of sex-typing in girls. There were two different measures of popularity included in the study: (1) the number of different children who interacted positively with the target child during a standard number of observations, and (2) the proportion of time that the target child spent in isolation from the peer group.

Therefore, it was predicted that fewer children would interact positively with the least sex-typed boys and that these boys would spend more time in isolation from the peer group than would be the case with highly sex-typed boys, while popularity would be less associated with the degree of sex-typing in girls. If it was the case that boys who exhibited relatively more feminine sex-typed behaviors received fewer peer reinforcements and were more often isolated from the peer group, the results of this study would have clinical implications for interventions with this group of boys. If it is assumed that social isolation from the peer group negatively affects self-esteem, acquisition of necessary social skills, and later interpersonal adjustment, then measures might be taken by preschool teachers and other adults to ensure that these boys would become more actively involved in interactions with the same-sex peer group.

The author planned to test another secondary hypothesis, if possible. In addition to recording the sex-typed play behaviors of the subjects in the present study, the style of play (active or aggressive) was recorded. It is a well-documented finding that boys are more active and aggressive in their play than girls. However, this dimension of play behavior has not been examined in conjunction with sex-typed play in order to determine if

the relationship between sex-typed play and peer consequences is stronger than the relationship between active/aggressive play and peer consequences. For example, it might be that boys are reinforced for active and aggressive play regardless of whether they are engaging in masculine or feminine sex-typed play behaviors. In a similar vein, boys' play may be more active and aggressive across different situations (both masculine and feminine sex-typed play behaviors), in contrast to only stereotypically masculine activities where the demand characteristics of the situation might elicit active and aggressive play.

METHOD

Subjects

Fifty-eight children from a university-affiliated preschool served as subjects. There were 36 girls and 22 boys ranging in age from 2 years, 11 months to 5 years, 3 months. The mean age for the girls was 4 years, 2 months, while the mean age for the boys was 4 years, 4 months. The sample included children from a wide range of ethnic backgrounds.

The preschool was divided into two classes that were held in two separate buildings, with a common outdoor play area between the two buildings. The two classrooms were virtually identical in design and equipment, and the children frequently visited the other classroom during free play periods.

Materials

A stopwatch and a behavior checklist were used for recording purposes. The behavior checklist, which was developed during a pilot study, consisted of 37 items that appeared to be representative of the majority of the children's play. Nearly one-half of the items were adopted from or modified from the behavior checklist

developed by Fagot and Patterson (1969). The checklist used during the subsequent observations included the following items:

1. Animals (live, toy, fantasy play)
2. Art activities (painting, cutting, pasting, drawing, clay)
3. Balls, bats
4. Looks at books
5. Boxes, crates
6. Buckets
7. Larger cars, wagons, horses, trikes
8. Climbs
9. Dances
10. Dirt or sand (as if cooking)
11. Dirt or sand (other)
12. Dolls, dollhouse
13. Dress-up in same-sex costume
14. Dress-up in opposite-sex costume
15. Jumps
16. Kitchen, extended kitchen activities
17. Sits and does nothing
18. Planks
19. Large playhouse (outside)
20. Rocker (teeter-totter)
21. Same-sex role in fantasy play
22. Opposite-sex role in fantasy play
23. Baby or child role in fantasy play
24. Swings on ropes
25. Rough-and-tumble play
26. Runs
27. Sings, listens to music, plays instruments
28. Slides
29. Telephone
30. Tires
31. Transportation toys
32. Treehouse
33. Violent fantasy play (e.g., shooting guns, playing monsters)
34. Wanders around
35. Plays with water
36. Legos, tinker toys
37. Other (list)

Procedure

Initially, a pilot study was conducted in order to determine if preschool-age children, and especially boys, engaged in a sufficient number of cross-sex-preferred play activities to make observations of peer reactions to such activities possible. That is, if the sex-role socialization process were complete by the time children entered preschool and therefore they very rarely or never engaged in play activities typically associated with the opposite sex, it would be impossible to determine if peers reacted negatively to cross-sex-preferred behaviors. Therefore, a pilot study was conducted to develop a representative checklist of play behaviors and to ensure that preschool-age children's play included at least some cross-sex-preferred activities, as defined by the previous literature on sex differences in play. This preliminary research was conducted over the course of two weeks in December, 1979, during nine approximately one-hour observation sessions. The methodology used was similar to that used in the main research project described below. The results of the preliminary study indicated that, although preschoolers spent the majority of time in same-sex-typed play as compared to opposite-sex-typed play, both sexes engaged in a number of activities that were typically preferred by the opposite sex. There was

considerable overlap between the sexes on many sex-typed play behaviors, with neither sex exhibiting exclusively same-sex-preferred activities. Therefore, it appeared that it would be possible to observe peer reactions to opposite-sex-typed play, and the main research project was initiated.

Observer reliability was established prior to the beginning of the study and was then checked on a weekly basis with each observer. There were three observers (two males, one female) who were naive with respect to the hypotheses of the study. They were undergraduate students who received course credit hours for their participation in the study. The author served as the standard for observer reliability so that each observer was required to obtain at least 80% agreement with the author during two separate and consecutive observation sessions before beginning to collect data. The author served only as the standard for observer reliability and did not collect data herself. Interrater reliability was calculated by exact agreement,

$$\frac{\# \text{ of agreements}}{\# \text{ of agreements} + \# \text{ of disagreements}},$$

and it was computed separately for the behaviors on the behavior checklist, the style of play (active or aggressive), the peer consequences that were delivered, and the name of

the peer delivering the consequences. Therefore, the percentage of interrater reliability was at least 80% for each of these four categories prior to the beginning of the study. A total of 40 approximately one-hour training sessions were required to establish interrater reliability. For Observer #1, there were nine training sessions over a period of three weeks. For Observer #2, there were 12 training sessions over a period of three weeks, and for Observer #3, there were 19 training sessions during a 6-week period. Once the criterion for observer reliability was reached, reliability was checked on a weekly basis with each observer. During the study, the average percentage of observer reliability for the play behaviors on the behavior checklist was 84% (range: 75 to 92%). With respect to the active/aggressive dimension of play, the mean percentage of observer reliability was 81% (range: 67 to 91%). The mean percentage of agreement for the consequences that were delivered by peers was 84% (range: 77 to 94%), and the comparable figure for the name of the peer that was delivering the consequences was 89% (range: 79 to 98%). This latter figure may appear somewhat low since all of the observers had learned the names of the subjects at the beginning of the training period. Generally, disagreements on this category occurred, not because the observers did not remember the children's names, but

because they disagreed on which children were present during the observation. For example, it was sometimes difficult to accurately identify all of the peers present during an observation if the target child were actively playing in a large group of children where members of the group were rapidly joining and leaving the activity.

The study was conducted during the late Spring and early Summer of 1980 over the course of 63 approximately one-hour observation sessions. All of the observation sessions were conducted during free play periods on sunny days when the temperature was 60 degrees Fahrenheit or above so that the children had free access to both outdoors and indoors facilities.

The observers attempted to remain as unobtrusive as possible and to avoid interacting with the subjects unless a direct question was asked, in which case a brief response was given and the observers moved away from the child as quickly as possible. If a subject asked the observers what they were doing, they simply stated that they were "watching the children play." If a subject were particularly inquisitive or if it were obvious that the observers had disrupted an ongoing activity by their presence, the observers moved on to observe the next subject and returned to the missed observation after observing the rest of the subjects on the list. Whenever a staff member inquired

into the nature of the study, they were told that it concerned free play interactions and particularly prosocial behaviors among peers. The subjects and the staff quickly became accustomed to the observers' presence at the beginning of the training period, and by the time that data collection began, they typically ignored the observers.

Prior to each observation session, both the order in which the two separate classrooms were observed and the order in which the children within each of the two classrooms were observed was determined randomly. The two classes were observed separately rather than randomly observing all of the subjects in the study in order to reduce the number of changes in position that the observers were required to make. However, the problem of frequent changes in position was not entirely circumvented by this solution since the children often played outdoors or visited the other classroom during free play periods.

During the observation sessions, each child present was observed for a 15-second interval. Following this 15-second interval, the observers coded the observation under four different categories: (1) the play behavior that the target child exhibited, which entailed recording the number of the play behavior from the previously described behavior checklist, (2) the style of the target child's play, which required the observers to record

abbreviations denoting whether the child's play was active or aggressive, (3) the consequences that were delivered by peers during the observation, which again required the observers to record abbreviations for the different categories of peer consequences, and (4) the name of the peer (or peers) delivering the consequences.

The target child's style of play was described in terms of activity level and aggressive behavior. Active play (AC) was recorded when the target child moved around frequently during play. If the observers were required to follow the child in order to observe him or if the child moved rapidly from one activity to another, active play was always recorded. Certain play behaviors on the behavior checklist were necessarily coded as active, such as climbs, dances, jumps, and runs. Other play behaviors on the behavior checklist were sometimes categorized as active and at other times were not, depending on the manner in which the target child engaged in the play activity. For example, riding cars, wagons, horses, or trikes was often classified as active. However, at times these behaviors did not involve a high level of activity, as would be the case if the target child was being pulled around in a wagon by another child or if the target child was simply sitting on a trike.

There were six different categories of aggressive play: (1) Physical Aggression towards a Human (PH), (2) Mock Physical Aggression towards a Human (MPH), (3) Verbal Aggression towards a Human (VH), (4) Mock Verbal Aggression towards a Human (MVH), (5) Physical Aggression towards an Object (PO), and (6) Verbal Aggression towards an Object (VO). Generally, aggression was defined as an intentional physical or verbal behavior designed to inflict injury or damage upon a person or an object, with the exception of the mock aggression categories in which the intent to harm was not evident. In the Physical Aggression towards a Human category, behaviors that have been traditionally considered aggressive and that involve the intent to harm were included (e.g., hitting, pushing, kicking, biting, throwing objects). The Mock Physical Aggression towards a Human category included instances of simulated aggression, such as rough-and-tumble play, war games, and violent fantasy play situations in which the target child pretended that he was shooting or otherwise attacking another child. Mock Physical Aggression towards a Human was coded if the target child hit, pushed, kicked, bit, or threw objects at a peer if it was judged to be within the context of play and without the intent to harm. Verbal Aggression towards a Human was

coded if the target child insulted, swore at, yelled at, argued with, teased, or criticized another child with the intent to harm. The Mock Verbal Aggression towards a Human category included instances of simulated verbal aggression. For example, the target child may have assumed the role of the mother in fantasy play and swore at, insulted, yelled at, argued with, teased, or criticized another child who had assumed the role of the child in fantasy play. Physical Aggression towards an Object was coded whenever the target child hit, pushed, kicked, bit, or threw objects at an object or toy (e.g., if the child were to spank a doll, bang a toy, or destroy a toy). Verbal Aggression towards an Object was recorded in instances in which the target child swore at, insulted, yelled at, argued with, teased, or criticized an object or a toy (e.g., if the child were to yell at a doll or swear at a transportation toy).

Coding of the consequences that were delivered by the peer during the observation involved one of four categories: (1) negative consequences, (2) positive consequences, (3) neutral consequences, or (4) isolation from the peer group. When coding negative or positive consequences, several subcategories were used to denote the specific peer reaction that was observed. Negative peer consequences included four subcategories: (1) Verbal

Aggression (VA), (2) Physical Aggression (PA), (3) Leaves (L), and (4) Discontinues Play (D). Verbal Aggression was recorded whenever the peer swore at, insulted, yelled at, argued with, teased, or criticized the target child, and Physical Aggression was coded if the peer hit, pushed, kicked, bit, or threw objects at the target child with the intent to harm. Leaves was coded if the peer left the area (4-foot radius) in which the target child was playing during the observation. Discontinues Play was recorded whenever the peer stopped playing with the target child without leaving the area in which the target child was playing.

Positive peer consequences included seven subcategories: (1) Verbal Reinforcement (VR), (2) Physical Reinforcement (PR), (3) Verbal Interaction (VI), (4) Supportive Overtures (S), (5) Follows/Imitates (F), (6) Joins in Play (J), and (7) Mock Physical Aggression (MPA). Verbal Reinforcement included instances in which the peer praised or made positive comments about the target child. Physical Reinforcement was recorded whenever the peer expressed physical affection (e.g., hugs, kisses) or initiated nonaggressive body contact, as in touching. The Verbal Interaction category included verbal interactions between the peer and the target child that could not be classified as either Verbal Aggression or Verbal

Reinforcement. Supportive Overtures included instances in which the peer helped or offered to help the target child or the peer gave or offered to give tangible objects to the target child. Follows/Imitates was coded whenever the peer followed the target child around or imitated the target child in a non-teasing manner. Joins in Play was recorded if the peer joined in or asked to join in the play activity of the target child. The Mock Physical Aggression category was used for cases in which the peer hit, pushed, kicked, bit, or threw objects at the target child within the context of play and without the intent to harm.

Neutral Consequences (N) were recorded if the peer reacted neither favorably or negatively to the play activity of the target child, as would be the case if the peer seemed to be unaware of the target child or if the peer were playing alone prior to the observation and continued to do so during the observation.

The Isolation category (I) was used whenever the target child was isolated from the peer group, thus making observations of peer reactions impossible. This category included cases in which the target child was playing alone with no peers in his or her immediate vicinity (within four feet).

Ordinarily, it was necessary to code only one play behavior during a 15-second interval. However, instances in which the target child engaged in two or more play behaviors simultaneously were denoted by a plus sign connecting the behaviors. If one play behavior rapidly followed another, the behaviors were noted sequentially and separated by a comma. In these cases, the peer's reactions were also noted sequentially and separated by a comma. When more than one peer delivered consequences to the target child, the different peers' reactions were encoded in a similar manner. Only the reactions of those peers within the target child's immediate vicinity (within four feet) were recorded.

Observations were not made if the target child had recently waken up from a nap (within approximately the past 10 minutes), was eating, or was involved in an activity initiated by the teacher. Rather, the observers returned to observe the child after observing the remaining subjects on the list. When the child was involved in a teacher-structured activity, a "T" was recorded. Every attempt was made to observe each child present during the observation session. However, the number of total observations per child varied widely due to absences, regular nonattendance on certain days of the week for some children, and arrivals and departures of children at different times

during the day. The average number of observations per child was 42, with a range of 12 to 63. Proportions, rather than frequencies, were used in the data analyses in order to equate for varying number of observations per child and for the fact that there were more females than males in the sample. An example of the observation sheet and the raw data obtained from one of the two classes during one observation period can be found in the Appendix, with the children's names changed for anonymity.

Following data collection, the first step in the analysis of the data involved discovering which play behaviors from the behavior checklist were significantly sex-typed. Prior to testing for sex differences in play behaviors, eight of the behaviors on the behavior checklist were eliminated from the analysis on the basis of extremely low frequencies of occurrence in order to reduce the possibility of obtaining significant differences by chance with repeated t-tests. These behaviors were also eliminated in order to reduce the number of variables so that a discriminant function analysis could be conducted without violating the requirements to a significant degree. Table 2 presents the mean proportion of time spent in the activities on the behavior checklist by girls and by boys. The following play behaviors were thrown out on the basis of exceptionally low frequency of occurrence: (3)

Table 2

Mean Proportion of Time Spent in the Activities
on the Behavior Checklist

Activity	Girls	Boys
1. Animals	.033	.039
2. Art activities	.086	.019
3. Balls, bats	.003	.007
4. Looks at books	.022	.006
5. Boxes, crates	.007	.011
6. Buckets	.002	.001
7. Larger cars, wagons, horses, trikes	.017	.031
8. Climbs	.014	.018
9. Dances	.011	.000
10. Dirt or sand (as if cooking)	.018	.009
11. Dirt or sand (other)	.027	.039
12. Dolls, dollhouse	.011	.013
13. Dress-up in same-sex costume	.028	.011
14. Dress-up in opposite-sex costume	.000	.003
15. Jumps	.006	.014
16. Kitchen, extended kitchen activities	.023	.009
17. Sits and does nothing	.062	.036
18. Planks	.018	.022
19. Large playhouse (outside)	.078	.117
20. Rocker (teeter-totter)	.008	.003
21. Same-sex role in fantasy play	.038	.032
22. Opposite-sex role in fantasy play	.000	.000
23. Baby or child role in fantasy play	.013	.004
24. Swings on ropes	.005	.022
25. Rough-and-tumble play	.001	.008
26. Runs	.026	.054
27. Sings, listen to music, instruments	.015	.012
28. Slides	.026	.020
29. Telephone	.001	.001
30. Tires	.015	.025
31. Transportation toys	.008	.039
32. Treehouse	.013	.019
33. Violent fantasy play	.002	.021
34. Wanders around	.045	.033
35. Plays with water	.030	.039
36. Legos, tinkler toys	.003	.018
37. Other	.054	.057

Balls, bats, (6) Buckets, (9) Dances, (14) Dress-up in opposite-sex costume, (20) Rocker (teeter-totter), (22) Opposite-sex role in fantasy play, (25) Rough-and-tumble play, and (29) Telephone. Behavior 37, Other, was also excluded from the analyses since it yielded no meaningful information. A multivariate analysis of variance (Hotelling's T^2) was initially used to test for an overall effect for sex on the remaining 28 play behaviors on the checklist as a safeguard against obtaining significant differences by chance using individual t-tests. This procedure was followed by individual t-tests for each of the remaining 28 play behaviors to test for sex differences in the mean proportion of time spent in the activities on the behavior checklist. In these and all subsequent analyses, the .05 level of probability was adopted.

Those play behaviors that were significantly more likely to be performed by girls were then grouped together as feminine sex-typed behaviors, and those behaviors that were significantly more likely to be performed by boys were grouped together as masculine sex-typed behaviors for the subsequent analyses. Any observations in which the child's play simultaneously included a feminine sex-typed and a masculine sex-typed activity were excluded from the data analyses. Simultaneous masculine and feminine sex-typed play occurred only .8% of the time.

Instances in which the subjects engaged in sex-typed and non-sex-typed play behaviors simultaneously were classified as sex-typed play and were included in the data analyses. In order to determine if peers reinforced same-sex-preferred play more than opposite-sex-preferred play and punished opposite-sex-preferred play more than same-sex-preferred play, 2 X 2 X 2 analyses of variances were conducted, one for positive consequences and one for negative consequences. The independent variables in both cases were sex of the target child, sex-typed play behaviors (masculine and feminine), and sex of the peer delivering the consequences. Three boys and three girls were excluded from the analyses because they did not exhibit any opposite-sex-typed play behaviors, and therefore peer reactions to opposite-sex-typed behaviors could not be observed.

A discriminant function analysis was conducted in order to determine the degree to which the subjects were sex-typed in their play behavior. It was hoped that a sufficient number of subjects would be misclassified with respect to their sex on the basis of their play activities to allow t-tests to be conducted to compare appropriately sex-typed subjects to cross-sex-typed subjects in terms of popularity. Since this was not the case, a second measure of the degree of sex-typing was

used, the difference between the proportion of time spent in same-sex-typed play and the proportion of time spent in opposite-sex-typed play. Pearson product moment correlation coefficients between the latter measure of sex-typing and the two measures of popularity were performed in order to determine if the more highly sex-typed subjects were also the more popular subjects. One measure of popularity was the proportion of time spent in isolation from the peer group. However, this alone was not judged to be a valid measure of popularity since isolation from the peer group might occur because the target child preferred to play alone, rather than as the result of rejection by the peer group. Therefore, a second measure of popularity was also used and that was the number of different peers who delivered positive consequences to the target child during the first 12 observations. The calculation of this figure was limited to the first 12 observations since the child with the fewest number of observations was observed only 12 times (this subject moved out of town with her family before the study was completed).

RESULTS

Sex Differences in Play

The multivariate analysis of variance (Hotelling's T^2) yielded a highly significant overall effect for sex on the 28 play behaviors from the behavior checklist ($F = 3.44$, $p = .0007$). The results of the individual t -tests indicated that 12 out of the 28 behaviors from the checklist were significantly sex-typed, with six behaviors being preferred by boys and six behaviors being preferred by girls. Those play behaviors that boys, as compared to girls, were significantly more likely to perform were: Large outside playhouse ($t = 5.81$, $p = .02$), Swings on ropes ($t = 29.91$, $p = .0001$), Runs ($t = 11.49$, $p = .001$), Transportation toys ($t = 22.47$, $p = .0001$), Violent fantasy play ($t = 15.60$, $p = .0002$), and Legos, tinker toys ($t = 8.96$, $p = .004$). Girls, in contrast to boys, were significantly more likely to engage in the following behaviors: Art activities ($t = 20.69$, $p = .0001$), Looks at books ($t = 6.02$, $p = .02$), Dress-up in same-sex costume ($t = 4.37$, $p = .04$), Kitchen, extended kitchen activities ($t = 5.17$, $p = .03$), Sits and does nothing ($t = 6.64$, $p = .01$), and Baby or child role in fantasy play ($t = 4.47$,

$p = .04$). The behaviors that were significantly more likely to be performed by boys were grouped together as masculine sex-typed behaviors, and the behaviors that were significantly more likely to be performed by girls were grouped together as feminine sex-typed behaviors for the subsequent analyses. Boys were significantly more sex-typed in their play in that they spent more time in same-sexed play than did girls ($t = 1.78$, $p < .05$). Boys spent an average of 30% of the time in same-sexed play, while girls spent 25% of the time in same-sexed play. In addition, there was a nonsignificant trend for boys to spend less time than girls in opposite-sex-typed play ($t = 1.67$, $p < .10$, n.s.). Boys spent 9% of the time in opposite-sex-typed play, and the comparable figure for girls was 12%. As can be seen, very little of preschool-age children's play is sex-typed. Less than one-third of the total time spent in free play was spent in play behaviors that differentiated between the sexes.

Peer Consequences for Sex-Typed Play

The main hypothesis that peers would be more likely to reinforce same-sex-typed play and to punish opposite-sex-typed play was not confirmed. With regards to positive consequences (see Table 3), the results of the $2 \times 2 \times 2$ analysis of variance (Sex of Target Child $\times$ Sex-Typed Behavior $\times$ Sex of Peer) demonstrated that peers

Table 3

Analysis of Variance Table (Sex of Target
Child X Sex-Typed Behavior X Sex of Peer)
for the Proportion of Positive Consequences
Delivered for Sex-Typed Behaviors

Source	Df	Sum of Squares	Mean Square	F Value	p > F
Model	7	2.19739524	0.31391361	2.55	0.0157
Error	200	24.65962376	0.12329812		
Total	207	26.85701900			

Source	Df	Type I SS	F Value	p > F
Sex	1	0.09005905	0.73	0.3938
Beh	1	0.23042274	1.87	0.1731
Peer	1	0.46352289	3.76	0.0539
Sex*Beh	1	0.11620762	0.94	0.3328
Beh*Peer	1	0.07278789	0.59	0.4432
Sex*Peer	1	1.20727410	9.79	0.0020
Sex*Beh*Peer	1	0.01712095	0.14	0.7098

were not more likely to reinforce same-sex-typed play than opposite-sex-typed play ($F = 1.87, p = .17, n.s.$). There was a significant effect for sex of peer, with girls delivering more positive consequences than boys, regardless of the sex of the target child or the sex-typed behavior that the target child emitted ($F = 3.76, p = .05$). In addition, there was a significant Sex of Target Child X Sex of Peer interaction ($F = 9.79, p = .002$). Boys reinforced boys significantly more often than they reinforced girls, and girls reinforced girls significantly more often than they reinforced boys.

With respect to negative consequences (see Table 4), peers did not punish opposite-sex-typed behaviors more than same-sex-typed behaviors ($F = .59, p = .44, n.s.$). In fact, there were no significant main effects or interactions with regards to negative consequences.

Sex-Typing and Popularity

The discriminant function analysis misclassified only three subjects (two girls, one boy) with respect to their sex on the basis of their sex-typed play behaviors. Many of the subjects were correctly classified into their sex group with a posterior probability level of .99 or above. Since the subjects were so highly sex-typed in their play, it was not possible to use the results of

Table 4

Analysis of Variance Table (Sex of Target
Child X Sex-Typed Behavior X Sex of Peer)
for the Proportion of Negative Consequences
Delivered for Sex-Typed Behaviors

Source	Df	Sum of Squares	Mean Square	F Value	p > F
Model	7	0.04259060	0.00608437	0.34	0.9360
Error	200	3.61673639	0.01808368		
Total	207	3.65932700			

the discriminant function analysis to classify the subjects into highly sex-typed vs. cross-sex-typed children. Therefore, the difference between the proportion of time spent in same-sex-typed play and the proportion of time spent in opposite-sex-typed play was used as a measure of sex-typing. This measure was based upon those play behaviors that significantly differentiated the two sexes, as were described previously. Again, it was not possible to group children into appropriate-sex-typed vs. cross-sex-typed subjects, but there was more variability in the data using this measure, which allowed a correlational approach to analysis. The correlation between the degree of sex-typing and the degree of popularity was not significant, by either definition of popularity. The degree of sex-typing in the target child was not associated with either the proportion of time spent in isolation from the peer group ($\underline{r} = .06$ for girls, $\underline{r} = .17$ for boys, n.s.) or with the number of different peers who interacted with the target child in a positive manner ($\underline{r} = .11$ for girls, $\underline{r} = -.11$ for boys, n.s.). There was a small but significant correlation between the two measures of popularity ($\underline{r} = -.28$, $p < .025$). The children who were most often isolated from the peer group tended to have fewer peers interacting with them in a positive manner, and the children who were least

often isolated from the peer group tended to have more peers interacting with them in a positive manner. This was not simply a function of the fact that children who were more often isolated from the peer group had fewer opportunities to interact with peers since the correlation between the proportion of time spent in isolation and the total number of different peers who interacted with the target child during the first 12 observations (not only in a positive manner) was not significant ($r = -.18$, n.s.). Therefore, those subjects that spent the most time in isolation were significantly less likely to receive peer reinforcements, but not significantly less likely to receive peer consequences in general (positive + negative + neutral consequences).

Activity Level and Aggression

It was not possible to analyze the data on the active and aggressive dimension of play in conjunction with the data on sex-typed play behaviors due to extremely low frequencies of behaviors that fell into both categories. For example, only four out of 22 boys exhibited feminine sex-typed play behaviors in an active manner, and only five boys exhibited feminine sex-typed play that was also aggressive. Therefore, it was not possible to determine if there was a stronger relationship between active,

aggressive play and peer consequences than between sex-typed play behaviors and peer consequences or if boys' play was more active and aggressive across all situations or only in situations that might elicit active, aggressive play.

Boys were significantly more active in their play than girls ($t = 4.69$, $p < .001$). On the average, boys' play was active 29% of the time, while girls' play was active 18% of the time. Boys' play was also significantly more aggressive than girls' play when all of the subcategories of aggressive play were grouped together ($t = 3.87$, $p < .001$). For boys, aggressive play occurred an average of 7% of the time, while the comparable figure for girls was only 3%. Boys exhibited significantly more physical aggression towards humans ($t = 5.16$, $p < .001$) and significantly more mock physical aggression ($t = 4.49$, $p < .001$) than did girls. However, the two sexes did not differ significantly in the frequency with which they exhibited verbal aggression towards humans ($t = .21$, n.s.). The three remaining subcategories of aggressive play (Mock Verbal Aggression towards a Human, Physical Aggression towards an Object, and Verbal Aggression towards an Object) were not analyzed separately due to extremely low frequencies of occurrence in these categories.

Boys were not significantly more likely to be reinforced for active play than girls ($\underline{t} = 1.08$, n.s.). Similarly, girls were not significantly more likely than boys to be punished by peers for active play ($\underline{t} = .24$, n.s.). Aggressive play was not analyzed in this manner due to the low frequency of aggressive play (7% in boys, 3% in girls). In addition, it would have been necessary to analyze the Physical Aggression towards a Human and the Verbal Aggression towards a Human subcategories, which might be expected to elicit negative consequences, separately from the remaining subcategories of aggression, which might be expected to elicit more positive consequences, thus making the frequency of instances of aggression even lower.

Contrary to what would be expected, there was a significant negative relationship between activity level and aggression in boys ($\underline{r} = -.44$, $p < .05$). The most active boys tended to be the least aggressive boys, and the least active boys tended to be the most aggressive boys. The correlation between activity level and proportion of time spent in isolation from the peer group was not significant ($\underline{r} = .10$, n.s.), ruling out the explanation that the least active boys were also the least popular and therefore the most aggressive. The relationship between activity level and aggression in girls was not significant ($\underline{r} = .21$, n.s.).

DISCUSSION

The main hypotheses of the present study, that peers would be significantly more likely to reinforce same-sex-typed play than opposite-sex-typed play and that they would be significantly more likely to punish opposite-sex-typed play than same-sex-typed play, were not confirmed. The data from this study do not suggest that peers effect the sex-typed play behaviors of preschool-age children through direct reinforcement and punishment processes. Nevertheless, the children in the present study were highly sex-typed in their play, indicating that sex-typed play behaviors are present very early in life. The discriminant function analysis misclassified the sex of only three children on the basis of their sex-typed play behaviors. There are two major alternative explanations for the finding that 3- and 4-year-old children were highly sex-typed in their play: (1) appropriate sex-typed play behaviors are learned primarily from parents prior to the time that children enter preschool, and/or (2) sex-typed play preferences are biologically determined. It is likely that sex-typed play behaviors are determined by the interaction of environmental and

biological factors, with heredity furnishing a general disposition that may be enhanced or inhibited by the environment.

A case could be made for a biological explanation for the play behaviors that significantly differentiated the sexes in the present study. Many of the behaviors that were preferred by boys involved a high level of either activity or aggression (large outside playhouse, swings on ropes, runs, violent fantasy play), both of which have been proposed to be biologically linked. Some studies have reported that males are more active than females at birth (Moss, 1967; Phillips, King, & Dubois, 1978), and the most consistently reported behavioral sex difference in the preschool years is that boys are more aggressive than girls (Maccoby & Jacklin, 1974). The overwhelming majority of evidence from ethological and from laboratory animal studies suggests that aggressive behavior is biologically based in animals. For example, rhesus monkeys that are raised in total isolation exhibit the expected sex differences in aggression when they are first introduced to monkey peers (Harlow, 1965). However, even in animals, the effects of hormones can be modified by environmental factors. Although a male monkey's level of aggression can be increased by raising male hormone levels, it is also the case that behavioral

stimuli can affect testosterone levels. Specifically, male monkeys who have been defeated in a fight show a significant decrease in testosterone levels, levels that quickly return to normal if a female monkey is introduced (McEwen, 1976). In human females who are perinatally exposed to excessive amounts of androgens, either due to the adrenogenital syndrome or to progestin-induced hermaphroditism, a history of tomboyism is often reported, including high energy levels in play and preferences for outdoors physical activities and play with cars, trucks, and building materials (Money & Ehrhardt, 1972). Despite their tomboyish behavior, the majority of females with the adrenogenital syndrome or progestin-induced hermaphroditism have a female gender identity. Although biological influences may result in a general disposition towards a higher level of activity and aggression in males, it is unlikely that biology can be related directly to specific behaviors in humans, since human behavior is much less dependent upon biological bases than is the case with animals. The biological component to a number of the sex differences in play that were found in the present study is not immediately obvious (e.g., dress-up in same-sex costume, art activities, kitchen activities). While it could be speculated from a biological perspective that boys' preference for play

with Legos and tinker toys was related to the fact that adult males are superior to adult females in terms of spatial abilities, art activities also involve a spatial component and yet art activities were significantly preferred by girls in this sample. Similarly, it could be argued from a biological standpoint that girls' preference for looking at books is determined by a genetic predisposition for girls to excel in verbal abilities and that girls' preference for assuming the role of a baby or child in fantasy play is related to a biologically linked maternal drive. However, the relationship between the proposed biological substratum and the specific sex-typed play behavior observed in these cases is tenuous.

From a social learning perspective, the results of the present study could be explained in terms of observational learning and parental reinforcements for appropriate sex-typed behaviors prior to the age at which children enter preschool. It is undoubtedly true that parents hold different attitudes about what behaviors are appropriate for their sons and their daughters and that these attitudes affect their reactions towards same-sex-typed vs. opposite-sex-typed play behaviors, even when they are not fully aware of the ways in which they socialize their sons and daughters differently. The majority of the studies reviewed previously point to the

influential nature of parental socialization pressures, although not all studies have found that parents socialize their sons and daughters differently. Again, an interactionist view provides the most plausible interpretation of the development of sex differences. Cross-cultural evidence and data from hermaphroditic individuals suggest that the human infant is very malleable and that environmental factors can override biological predispositions. In the majority of primitive cultures reviewed by Barry, Bacon, and Child (1957), girls were socialized to be nurturant and responsible, while boys were socialized to be self-reliant and achievement-oriented. These sex differences in socialization were most evident in cultures which highly valued physical strength due to the labor needs of the culture. Therefore, most cultures tended to maximize rather than minimize the biological differences between the sexes. However, those cultures in which socialization pressures were in the opposite direction, where boys were trained to be nurturant and where girls were trained to be self-reliant, point to the importance of environmental factors in the establishment of sex roles.

Even more compelling evidence for the influence of environmental factors on the ontogeny of sex differences comes from Margaret Mead's (1963) book, Sex and Temperament

in Three Primitive Societies. Mead described three New Guinea tribes that varied widely in their socialization practices and in the resulting patterns of sex roles that were observed in the members of the tribes. In one tribe, the Mundugumor, both men and women were overly aggressive, "masculine," and displayed only minimal interest in child-care, while in the Arapesh tribe, both sexes were described in traditionally feminine sex-typed terms, such as cooperative, unaggressive, gentle, and maternal. Finally, the sex roles of the Tchambuli were the reverse of those in Western cultures. Tchambuli women were dominant, impersonal, and managed the financial affairs, while Tchambuli men were coquettish, emotionally dependent, and less responsible.

Strong support for the environmental interpretation of the development of gender identity and gender role comes from Green (1974), who observed a pair of male monozygotic twins who were raised in opposite sex roles due to accidental ablation of the penis during circumcision in one of the twins. The twin who was raised as a boy exhibited stereotypically masculine behaviors, while his identical twin who was raised as a girl displayed stereotypically feminine behaviors. Further evidence comes from the work with hermaphroditic individuals who were raised in the sex role contrary to their

biological sex. In these cases, gender identity is generally consistent with sex of assignment at birth and sex of rearing rather than biologic sex (Money & Ehrhardt, 1972; Hampson & Hampson, 1961). However, it is important to note that sex of rearing does not override biological variables of sex 100% of the time, again pointing to an interaction between biological and environmental factors.

Those sex differences in play that were discovered in the present study are generally consistent with previously reported findings in the literature on sex-typed play behaviors. With respect to the masculine sex-typed play behaviors in the present study, previous researchers have also reported that boys prefer play with transportation toys (Fagot, 1977; Fagot, 1978a, 1978b; Fagot & Patterson, 1969; Rabban, 1950; Smith & Daglish, 1977), running (Melson, 1977; Pederson & Bell, 1970), violent fantasy play (Cramer & Hogan, 1975; Sanders & Harper, 1976), and Legos and tinker toys (Connor & Serbin, 1977). To this author's knowledge, the remaining two play behaviors that were significantly preferred by boys, "large outside playhouse" and "swings on ropes," have not been examined in prior studies. The large outside playhouse was a wooden-framed play structure, somewhat similar to a fort. It is not surprising that boys preferred to play on the large outside playhouse since it was often used

in a very active manner (e.g., running up the ramp to the inside of the playhouse or climbing on the structure). Compared to girls, boys also preferred to swing on ropes. Although previous investigations have found that play on swings is significantly preferred by girls (Lott, 1978; Pederson & Bell, 1970; Tizard, Philps, & Plewis, 1976), swinging on swings is a less active form of play than swinging on ropes, which may account for the apparent discrepancy in the direction of the sex difference on this behavior.

With respect to the play behaviors that were significantly preferred by girls, previous studies have also reported that girls prefer art activities (Clark, Wyon, & Richards, 1969; Fagot, 1977; Fagot, 1978a; Fagot & Patterson, 1969; Harper & Sanders, 1975; Lott, 1978; Melson, 1977; Pederson & Bell, 1970), dress-up (Fagot, 1974; Fagot, 1978b; Rabban, 1950), kitchen activities (Fagot, 1977; Fagot, 1978a; Fagot & Patterson, 1969; Harper & Sanders, 1975; Rabban, 1950; Tizard, Philps, & Plewis, 1976), and looking at books (Fagot, 1978a). Although assuming the baby or child role in fantasy play has not been examined specifically in prior studies, the fact that this behavior was preferred by girls is consistent with previous findings that indicate that girls' fantasy play is significantly

more likely to involve peaceful family scenes (Cramer & Hogan, 1975) and that girls are more likely than boys to play house (Sanders & Harper, 1976). Girls also spent more time sitting and doing nothing than was the case with boys, which is consistent with the fact that boys are significantly more active in their play than girls (Goldberg & Lewis, 1969; Pederson & Bell, 1970; Smith & Daglish, 1977). Unlike girls in many previous studies, the girls in the present study were not significantly more likely than boys to play with dolls. This is most probably due to the recent rise in popularity of male dolls. Informal observation of the children in the present study suggests that girls continue to play with baby dolls more often than boys, but that boys are more likely to play with male dolls, such as Superman or Batman dolls.

Preschool-age children spend very little of their total free play time in sex-typed play activities (less than one-third of their total play was sex-typed in the present study). Therefore, it would be difficult for their young peers to be discriminating enough to differentially respond to same-sex-typed vs. opposite-sex-typed play behaviors. Particularly in the case of opposite-sex-typed play, which occurred in girls only 12% of the time and in boys only 9% of the time, the discriminative

abilities of 3- and 4-year-old peers may not be sufficient to allow them to respond negatively to opposite-sex-typed play in a consistent manner. As was expected, boys were significantly more sex-typed in their play than were girls in that they spent more time in same-sex-typed play activities. However, boys did not spend significantly less time in opposite-sex-typed play activities, although there was a nonsignificant trend in this direction ($p < .10$). Serbin, Connor, Burchardt, and Citron (1979) found that 3- and 4-year-old girls were significantly more likely than boys to exhibit opposite-sex-typed play. However, two studies with a somewhat younger age group (two to three years old) have reported contradictory findings, that boys exhibited more opposite-sex-typed play than girls (Etaugh, Collins, & Gerson, 1975; Fagot & Patterson, 1969). Since the majority of studies indicate that boys become more sex-typed than girls from approximately four years of age on (Maccoby & Jacklin, 1974), it may be that the 3- and 4-year-old boys in the present study did not spend significantly less time in opposite-sex-typed play because this is a period of transition when boys are moving from being less sex-typed to being more sex-typed than girls. Therefore, sex differences in the amount of time spent in opposite-sex-typed play may be unstable in this age group.

It is difficult to explain why girls delivered significantly more positive consequences than boys, regardless of the sex of the target child or the sex-typed behavior that the target child emitted. The most likely explanation is that the definition of positive consequences included a number of subcategories that represented quite different types of reinforcements, many of which might be expected to be delivered more often by girls (Verbal Reinforcement, Physical Reinforcement, Verbal Interaction, Supportive Overtures, and perhaps Follows/Imitates). Girls might be expected to interact verbally and to deliver more verbal reinforcements since they are generally more verbal than boys. In the case of verbal reinforcements, it may also be that girls are socialized to be more nurturant and to foster interpersonal relatedness. Since there is a cultural taboo against physical expressions of affection for males, girls would be expected to deliver more physical reinforcements. Supportive overtures would be more likely to be seen in girls since girls are socialized to exhibit prosocial, nurturant behaviors. These speculations are consistent with Parson's ideas (Parsons & Bales, 1955) that the feminine sex role is characterized by expressiveness, while the masculine sex role is characterized

by instrumentality. The expressiveness of the female sex role involves giving rewarding responses to others in order to receive rewarding responses, and the female is assumed to be more oriented towards relationships with others and creating and maintaining emotional bonds than the male. In contrast, the masculine sex role involves instrumental behaviors that are oriented towards the accomplishment of tasks and joint projects through action, and therefore males are not as oriented towards immediate emotional responses to themselves as are females. Another class of positive consequences that females might be expected to exhibit more often than males is the Follows/Imitates subcategory of positive consequences. It is possible that girls might follow their peers more often due to a history of reinforcement for dependent behaviors. In terms of imitation, it does not appear that there is a consistent preference for either sex to imitate others, except for some specific behaviors. Boys tend to imitate aggressive behaviors, and girls tend to imitate affectionate behaviors (Maccoby & Jacklin, 1974). Only two of the seven subcategories of positive consequences seem to be more likely to occur in boys, Joins in Play and Mock Physical Aggression. Since boys tend to play in larger groups of children, it is likely that they would join in the play of others more frequently than girls, and boys are

significantly more likely to exhibit mock physical aggression than girls. Unfortunately, the individual subcategories of positive consequences could not be analyzed separately for sex differences due to low frequencies of occurrence in many of the categories. For example, the number of occurrences of physical reinforcement was very low in general, and it was extremely rare that boys would deliver physical reinforcements to peers.

There was a significant Sex of Target Child X Sex of Peer interaction, with boys reinforcing boys significantly more often than they reinforced girls and with girls reinforcing girls significantly more often than they reinforced boys. This finding is most probably due to the fact that boys tend to play with boys and girls tend to play with girls because of a tendency on the part of children to classify themselves as a boy or a girl and then strongly identify with the same-sex peer group.

The hypothesis that highly masculine sex-typed boys would be more popular than boys who were less sex-typed in their play was not confirmed. The correlation between the degree of sex-typing and the degree of popularity was not significant, by either of the definitions of popularity used in this study. Although these results are in contradiction to the original hypothesis, they are not surprising in light of the fact that peers did not respond differentially to same-sex-typed vs. opposite-sex-typed play

behaviors. The lack of a significant relationship between sex-typing and popularity is consistent with the fact that positive consequences from peers were not contingent upon appropriate sex-typed behaviors.

There was a small but significant correlation between the two measures of popularity. The children who were most often isolated from the peer group tended to have fewer peers interacting with them in a positive manner, and the children who were least often isolated from the peer group tended to have more peers interacting with them in a positive manner. This was not simply a function of the fact that children who were more often isolated from the peer group had fewer opportunities to interact with peers. Perhaps those children who receive fewer reinforcements from peers withdraw from the peer group due to perceived or real rejection or due to the relative lack of reinforcement for social interactions. On the other hand, it may be that those children who are most often isolated from the peer group are temperamentally more withdrawn and reserved, in which case they may not exhibit the types of social behaviors that elicit peer reinforcements when they do come in contact with peers.

Consistent with the results of a number of previous studies, boys were more active and more aggressive in their play than were girls (Goldberg & Lewis, 1969; Pederson

& Bell, 1970; Smith & Daglish, 1977; Smith & Green, 1975). Although boys exhibited more physical aggression and more mock physical aggression than girls, the two sexes did not differ significantly in the frequency with which they were verbally aggressive. This finding is consistent with the work of Bandura, Ross, and Ross (1961), who found a greater incidence of direct, physical aggression in boys, but no sex differences in verbal aggression. This may be due to socialization pressures for girls to inhibit physically aggressive responses and display aggression in more subtle, verbal ways. On the other hand, sex differences in physical aggression may have a biological base, as discussed previously. It is likely that there is a biological base for the higher incidence of physical aggression in males, which is capitalized upon by environmental factors.

Contrary to what was expected, there was a significant negative relationship between activity level and aggression in boys, with the most active boys displaying the least amount of aggression. Although it seemed reasonable that the most active children would also be the most aggressive since they might be involved in more interactions of all kinds, this was not the case. In attempting to account for this discrepancy, the relationship between activity level and proportion of time spent in isolation from the peer group was examined in order to determine if the least

active children might display more aggressive behaviors because they were less popular. Clinically, it would seem plausible that the more passive, withdrawn boys might also be more aggressive (at least with respect to the Physical Aggression and the Verbal Aggression towards a Human sub-categories) since they would be less involved with their peers and possibly less popular. A high level of activity is characteristic of young boys' play, and consequently, those boys who are considerably less active than their peer group might not be accepted by their agemates and might not learn necessary social skills. However, the relationship between activity level and proportion of time spent in isolation from the peer group was not significant, ruling out this explanation. That is, the least active boys did not appear to be more withdrawn and isolated from the peer group. It may be that the negative relationship between activity level and aggression was a spurious one. Maccoby and Jacklin (1974) cited a study in which the correlations between physical aggression and two measures of activity level were small and non-significant.

Peers do not appear to influence the activity level of their playmates through direct reinforcement and punishment. Boys were not significantly more likely to

be reinforced by peers for active play than girls, and girls were not significantly more likely to be punished by peers for active play, as compared to boys. Although peers may contribute to the higher level of activity in boys' play through modeling, boys are more active than girls across a number of different situations and not only in play with peers. Therefore, there may be a biologically based predisposition for boys to be more active than girls, a predisposition that is enhanced by socialization experiences. We have seen that some studies have reported that males are more active than females at birth, suggesting a biological component to the higher level of activity in males. Similarly, females who have been perinatally exposed to excessive amounts of androgens display high energy levels. However, there is also evidence to suggest that parents encourage more physically active play and elicit more gross motor activity from their infant sons than from their infant daughters (Smith & Lloyd, 1978; Maccoby & Jacklin, 1974), suggesting an environmental component to the higher level of activity in males.

Although the present study represented an attempt to broaden the scope of the study of the socialization of sex differences by examining the

contribution of peers to the sex-role socialization process, the author still contends that future research should take a less narrow view of sex-role development than it has in the past. To date, the overwhelming majority of research efforts in this area have focused narrowly on variables associated with the same-sex parent. By and large, these efforts have demonstrated that the notion that boys are masculine because they identify with their fathers and girls are feminine because they identify with their mothers is too simplistic. In order to adequately explain sex-role development, the scope of future research must be broadened. There are a number of areas that deserve further investigation, namely temperamental variables, the influences of nonparental sources of socialization (e.g., peers, siblings, preschool teachers, non-family adults, the mass media, and children's books), and the complementary role of the opposite-sex parent. Similarly, the focus of research to date has been on early childhood, and while early childhood is a very critical period for the establishment of gender identity, sex-role socialization occurs throughout the latency-age years and the effects of puberty of gender identity and gender behavior should not be neglected. Many of the generalizations that can be made about sex-role development

are limited by the fact that the majority of studies have been conducted in the laboratory setting or have utilized self-report measures; observational data from the natural environment are sorely needed.

The scope of future research might also be broadened by examining the interactions between variables rather than focusing solely on one class of determinants of sex-role development. Virtually all psychological phenomena are multiply determined, and this is undoubtedly the case with psychosexual development. While it is true that biological variables can override environmental variables, it is also the case that environmental variables can override biological variables. Since it is obvious that both classes of determinants are important to sex-role development, it would be more profitable to replace the nature vs. nurture quest with the nature and nurture quest. Finally, future researchers should acknowledge the bidirectionality of parent/child interactions and examine to what extent characteristics inherent in the child influence the reactions of parents and other socializing agents.

APPENDIX
EXAMPLE OF THE OBSERVATION SHEET AND RAW DATA

Observer: Susan Date: 5/30/80 Time: 12:30-1:30

Name	Beh.	Style	Conseq.	Name of Peer
Aaron	37(camera)		J+VI	Jack
Kathy	37(hose)		I	
Angie	16		L;J+VI;J+S	Sam,Don,Jack
Pat	1		J,J,J	Bart,Dan,Nan
Kate				
Roger	T/left			
Mary	5		J+VI,J	Nancy,Tom
Sam	5		J,J,J	John,Mark,Pam
Bart	19		J+PR	Dan
Nancy	5		J,N	Mary,Carol
Helen	34	AC	I	
Bob				
Carol	1+5		S+VI,J,J	Pat,Pam,Nancy
Mark	33+8	AC	J+VA,J,J	Paul,John,Sam
Nora				
John	37(seeds)		S,L;L;J;J;J	Kathy,Sue,Mark, Paul,Sam
Pam	5,26	VH,AC	PA	Bart
Sue	1		S,J,J	Pat,Kathy,Nan
Betty				
Jack	34	AC	I	
Tom	5		J+VI,J,J	Bart,Dan,Nancy
Don	4+27		J,L;VI,L	Sam,Jack
Dan	5		J,J,N	Bart,Tom,Jack
Paul	19+8	AC	I	
Nan	34		L,L	Mary,Pat

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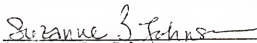
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BIOGRAPHICAL SKETCH

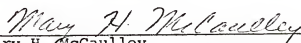
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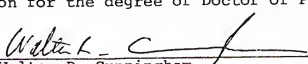
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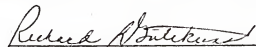
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August, 1981



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